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ABSTRACT

This guidebook is designed to assist postsecondary occupational educators in the conduct of local program evaluation efforts. The Reality-Based Evaluation (RBE) system for program evaluation has been designed to be flexible within a general recommended structure and is intended to be adaptive rather than adoptive. A major tenet of RBE is that program adjustments are made as soon as data-supported judgments are possible. RBE consists of three phases: (1) Clarification--program objectives, activities, evaluative strategies, and clarifying questions are identified; (2) Data collection--the Phase I information leads to Phase II where data collection is operationalized; and (3) Interpretation--judgments are made (based on data) and recommendations formulated for improving the program. Following a description of the system are illustrations of the methods by which the RBE system may be locally employed. Examples of RBE application are presented and discussed, as are numerous evaluation techniques and instruments, including a brief discussion of the advantages and disadvantages associated with each. Techniques of data collection and approaches to cost analysis are listed and described. RBE design materials intended to facilitate local design of evaluation forms are included. (Author/JDS)

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REALITY-BASED EVALUATION FOR TWO-YEAR COLLEGE OCCUPATIONAL PROGRAMS

GUIDEBOOK

Revised Edition

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NATIONAL INSTITUTE OF EDUCATION

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for
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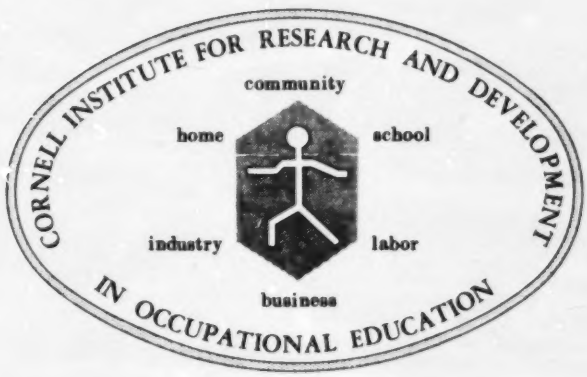

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1976

AN INSERVICE STRATEGY FOR IMPROVING LOCAL EVALUATION
FOR TWO-YEAR COLLEGE PROGRAMS
IN OCCUPATIONAL EDUCATION

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INTRODUCTION

The Reality-Based Evaluation Guidebook or user's manual was produced to assist post-secondary occupational educators in the conduct of local program evaluation efforts.

The guidelines are not subject-matter specific in order to be applicable to the wide variety of occupational programs and projects that exist. Adaption rather than adoption is emphasized in order to address local philosophical and operational variables and provide for local staff involvement. The pilot edition (June 1975) presented the program evaluation process in three phases with worksheets and procedural guidelines for each phase. This edition of RBE retains the basic phases but asks the local evaluator to select the organizational elements most meaningful to local staff members conducting the evaluation. In one sense it is a do-it-yourself approach to evaluation---a recommended design is presented but the final scope and shape are subject to local choice.

We feel such an approach reflects and capitalizes on the realities of post-secondary occupational education. No comprehensive evaluation process is easy or free of at least the opportunity costs of time and effort. We hope that this process model will facilitate carrying out an evaluation by removing some of the mystery while providing a structured flexibility that allows local priorities and professionalism to shape the final product.

This publication is organized as follows: introductory materials, rationale and model, discussion of the RBE process, examples of adapting the process, supplementary topics, and design materials.

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The RBE process represents a consensus of the knowledges, attitudes and experiences of the project staff and the cooperating college staff members whose names appear below. The project staff is appreciative of the time and effort extended on behalf of the project. A part of RBE rightfully belongs to the following educators:

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RATIONALE AND MODEL

What is Program Evaluation?

Program is an inclusive rather than a delimiting term. An educational program can be defined as an organized set of activities designed to result in specified outcomes. There are instructional programs, service programs, projects and curricula. A program is also a summary term that refers to the total interaction of its many components:

--- student performances, knowledges and attitudes

--- personnel performances, knowledges and attitudes

--- procedures and processes

--- services and products

--- instructional strategies and materials

Program evaluation focuses upon component sequences and relationships as they interact in the educational process and seeks answers to the "why or why not" as well as to the "what" questions.

Occupational programs are usually evaluated to determine what happened; for example, the number of graduates employed or the number of students that demonstrated certain skill proficiencies. This is product or summative evaluation. Formative or process evaluation focuses upon the program activities and procedures to determine why or why not. Program evaluation implies doing both formative and summative, and relating the processes to outcomes.

Why Evaluate?

Evaluation is motivated by many factors---educational, economic, political, administrative, programmatic. Evaluation can be threatening and the motives misunderstood. Program evaluation however should be directed towards improving the program and serve as evidence that professional educators are actively concerned with quality and accountability.

Evaluation should be approached with a positive attitude. An important first step is that motives be examined and clarified in order to overcome or reveal a biased mental set. Unless the proposed evaluation is a one-person effort, a pre-evaluation planning session is recommended to gain consensus of involved staff members regarding the purpose or motive for the evaluation effort. Evaluation may carry with it threats of personal intimidation and/or suspicions of being asked to testify against one's self. Valid information cannot be collected in a context of distrust and defensiveness.

Human relations concerns recommend a pre-evaluation meeting. Union rules may require it as part of the negotiations process.

What is "Reality?"

The "reality" in which we work is different for each of us. Consequently the "Reality-Based" program evaluation model is based on several assumptions:

1. Most educators are continually evaluating program efforts, but not necessarily formally or comprehensively.
2. If local program evaluation efforts are requested, the performance of the evaluation should become a recognized professional responsibility, but is often assigned as an additional task.

3. All evaluation efforts fall short of a mythical ideal evaluation, but all evaluation efforts should result in better information for decision-making.

4. Any evaluation process should be adapted to the reality of the local situation.

5. Evaluation must be concerned with processes and interim outcomes as well as end of program results because educators want to know why things happened in addition to what happened.

6. The clarification of program objectives is the basis from which an evaluation effort proceeds.

The RBE model and procedural steps are presented as a common sense approach to program evaluation that ultimately provide for better informed decisions. These decisions may be directed towards:

--- modification of activity

--- revision of standards

--- refocusing of goals

--- reassessment of needs

--- expansion

--- modularization

--- curtailment

--- maintenance or reaffirmation of the existing program

Evaluation provides information. People make judgments.

REALITY-BASED EVALUATION is clarifying what we really intend to do, collecting information on what we actually are doing, interpreting how well we did it, and recommending what should be done in the future.

Evaluate What?

The Reality-Based Evaluation user's manual focuses on attainment of program objectives. Much has been written elsewhere about formulation of good objectives. In this system we see a program objective in its complete form as a statement of---*Who will do What by When and How Assessed.* A program objective may summarize groups of more specific instructional objectives. Similarly one or more program objectives can be summarized by a program goal.

Occupational program objectives can be written with at least two major foci:

1) student-centered, in terms of student performances, knowledges and attitudes, and

2) process-centered in terms of procedures, services, products developed or equipment provided.

A comprehensive set of program objectives will include statements in several of the following categories:

a) The acquisition of minimum sets of theories, concepts and knowledges in selected subject fields.

b) The acquisition and demonstration of minimum sets of skills, competencies or performances related to occupational tasks.

c) Positive attitudes or satisfaction towards study, work, and people.

d) Basic communication and computational skills.

e) Acquisition of job-seeking skills and knowledges.

f) Employment in a training-related field, if desired.

g) Credentialism.

h) Continued education or training.

i) Congruency of curriculum content and occupational field requirements.

j) Quality and quantity of services rendered.

The series of program objectives should outline the program and suggest data at certain time points along the way which support their attainment. The RBE model begins with program objectives. At the start, existing statements of objectives should be utilized rather than becoming involved in rewriting. The first phase of the RBE process will assist in the clarification of these program objectives. Experience has shown this to be one of the strengths of the model.

What is the Reality-Based System for Program Evaluation?

The essence of the RBE process is presented below:

Pre-Evaluation Phase

---Obtain consensus on the motives or purposes for the evaluation and enlist the cooperation of staff members in the planning process.

---Link the evaluation purposes to college mission statements or division goals.

---Establish the scope of the evaluation and identify potential barriers.

Phase I - Clarification

---List existing program objectives and the activities that will occur.

---Identify criteria and/or ways each objective will be evaluated.

---Submit the outline to a respected colleague or group acting in the role of an external evaluator to assist the clarification process.

Phase II - Data Collection

---For each clarified objective, determine and collect evidence related to the attainment of the program objectives.

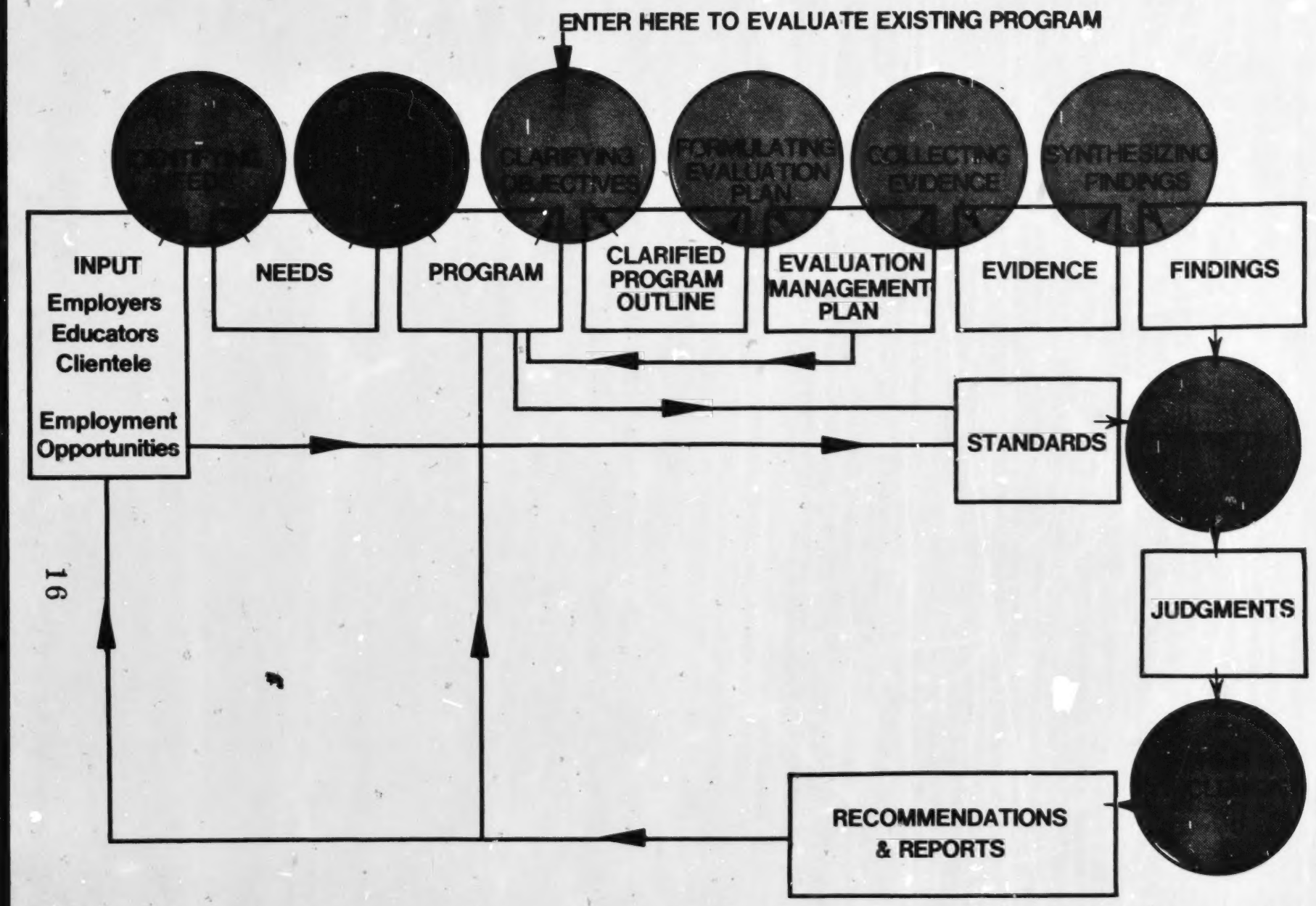
Phase III - Interpretation

---Organize and compare the evidence to standards in order to make interpretations and judgments on the effectiveness of the program.

---Report recommendations to appropriate audiences.

The phases and steps of Reality-Based Evaluation system are presented in the following model. The circles identify activities or events that lead to the results of the evaluative activities shown by the squares. When an evaluation plan is being prepared for a non-operational program, activities usually begin with *IDENTIFYING NEEDS* and then proceed more or less sequentially through the model steps. When an existing program is being evaluated, activities begin with *CLARIFYING OBJECTIVES*.

Ideally the complete process begins once *NEEDS* have been identified through *INPUTS* from such sources as employers, educators, clientele and employment opportunities. A *PROGRAM* is developed to meet the individual and societal needs. After the decision to evaluate is made, Phase I leads to clarification of program objectives, activities and strategies. Phase II, identifies tasks, roles and procedures for collecting the *EVIDENCE* of objective attainment. Phase III produces *FINDINGS* which are considered against *STANDARDS*, leading to evaluative *JUDGMENTS* and *RECOMMENDATIONS* which are directed back to the program and program decision-makers. All possible information feedback loops are not shown on the model to avoid undue clutter and confusion. It is taken for granted, however, that each activity feeds backward as well as forward and that a constant process of adjustment occurs throughout the model as decisions are made at each subsequent step. A major tenet of Reality-Based program evaluation is that program adjustments are made as soon as data supported judgments are possible.


ENTER HERE TO EVALUATE EXISTING PROGRAM
CLARIFYING OBJECTIVES
FORMULATING EVALUATION PLAN
COLLECTING EVIDENCE
SYNTHESIZING FINDINGS
INPUT
Employers
Educators
Clientele
Employment Opportunities
NEEDS
PROGRAM
CLARIFIED PROGRAM OUTLINE
EVALUATION MANAGEMENT PLAN
EVIDENCE
FINDINGS
STANDARDS
JUDGMENTS
RECOMMENDATIONS & REPORTS

THE REALITY-BASED EVALUATION PROCESS

Overview: Design

The RBE system for program evaluation begins when a) a program exists, and b) a decision is made to evaluate it. It has been purposely designed to be as flexible as possible within a general recommended structure. For each phase, an Evaluation Outline Form (EOF) is suggested as a work-sheet and alternate column headings are provided for structuring the evaluation programs within each phase. Certain column headings are recommended but the final selection of the appropriate design of the evaluation forms is a local decision, depending upon the completeness of the program objectives and local staff preferences for structure within the context of the program being evaluated.

Reproducible masters for basic forms and alternative column headings for the worksheets for each of the three phases are included in the Design Materials section*. This choice in worksheet design is intended to not only allow for uniquenesses of local situations but also enhance local staff ownership of the effort.

Time Dimension in Evaluation

This three phase structure implies a year-long time dimension from Planning (Phase I) through Interpretation (Phase III). However, a major tenet of reality-based program evaluation is that program adjustments are made as soon as data supported judgments are possible. At the end of Phase I the evaluator may have sufficient information to decide to seek a re-allocation of resources or perhaps stop the evaluation of what is

*Refer to page 42 for design of material.

and devote the effort to reassessing the need for the program.* Some objectives may be sequential, requiring that one or two be taken through the complete cycle before a third objective is begun. For example, a student-centered exit criteria objective may take two years to complete while an interim point skill objective or a process centered objective may be taken through the entire cycle in a few months.

The phases of RBE have a logical order but in practice the relationship is a series of feedback loops. The turnaround time will vary by the objective.

Phase I - Clarification

The essence of the Clarification Phase culminates with a realistic outline of what the program intends to do, how it will be done, and how it will be evaluated. Appropriate headings and columns used in the Phase I worksheet will vary depending on local situations and the comprehensiveness of the objectives that exist. The stated objective may contain the outcomes and/or criterion measures. There may be only one obvious activity. Consider the objective as stated and judge the extent to which the recommended columns will help clarify the objective and describe how it will be evaluated.

The choices for headings/columns in Phase I and relevant definitive or descriptive questions are as follows:

---

*A more extensive discussion can be found in the Supplementary Resources section.

Recommended Structure for Phase I Worksheet:

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	What activities will actually take place to achieve the outcome of each objective?	How can the outcome be measured?	What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?

Optional Column Headings:

OUTCOMES	CRITERION MEASURES
What are our realistic intentions?	What specific task(s) will constitute successful achievement?

From experience in utilizing RBE the column headings *OBJECTIVES, ACTIVITIES, EVALUATIVE STRATEGIES* and *CLARIFYING QUESTIONS* are generally recommended for Phase I. However it is acknowledged that other headings may have utility. The best choices are those that make the most sense to the user in terms of organizing and planning the local evaluation.

The Phase I worksheet or Evaluation Outline Form (EOF-1) guides the user through a process that results in a clarified outline of the program. This may be undertaken by one person but it is suggested as a group or staff activity. It assumes that program objectives exist or can be identified, at least tentatively, within a reasonable short time.

The danger at this point is that all available time will be used in developing a "perfect" objective. It is recommended that the user take the objective "as is" and proceed.* Revisions will undoubtedly be made as reality-based program outline is completed.

The obvious danger of the self-fulfilling prophecy, inherent in locally performed evaluations, becomes acute during this clarification process. In addition to beginning with the program objectives that exist, the role often played by an external evaluator, *CLARIFYING QUESTIONS*, is recommended to combat internal bias. For example, upon completion of column headings *OBJECTIVES*, *ACTIVITIES*, and *EVALUATIVE STRATEGIES*, an "outsider" might ask questions such as these:

--- Are the activities and program expectations feasible?

--- Are the objectives clear?

--- Is there a time sequence inherent in the objectives and/or activities?

--- Are the committed resources adequate to the task?

--- Are there better evaluative strategies?

In a real situation other questions will come to mind. Responses to these questions may encourage further clarification of the program outline. The role of external evaluator can be assumed by, among others, a trusted colleague, a dean or department chairman, or a technical advisory committee. Proper use of this column will enhance the credibility and the findings of the total evaluation effort. Its use is strongly recommended.

---

*The section, Supplementary Topics, presents one method for writing program objectives.

Phase II - Data Collection

The information from Phase I leads directly to Phase II where data collection is operationalized. The objectives for Phase II can now be restated, as appropriate, in the form of *WHO* will do *WHAT* by *WHEN*, drawing on words, phrases and concepts from several of the Phase I columns. The opportunity for local design choices is again part of the system. The appropriate choices will flow from the Phase I experience and the local situation.

The following column headings are presented as choices in the design of the Phase II Evaluation Outline Form (EOF-2).

Recommended Structure for Phase II Worksheet:

CLARIFIED OBJECTIVES	*EVIDENCE*	*SOURCES-PROCEDURES-PERSONNEL-TIME*
Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).	What evidence can be obtained to determine attainment of objectives?	Where can best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?

Optional Column Headings:

CLARIFYING QUESTIONS	*QUALITY CONTROL OR MONITORING CONSIDERATIONS*
What should an external evaluator ask, given the objectives and tentative evaluative strategies?	What is actually taking place? What changes are occurring during implementation? How are changes affecting programmatic factors?

EVIDENCE, CLARIFIED OBJECTIVES, SOURCES-PERSONNEL-PROCEDURES-TIME and if not previously used in Phase I, *CLARIFYING QUESTIONS* are generally recommended. *QUALITY CONTROL* or *MONITORING CONSIDERATIONS* may be related to the time dimension and may be especially useful when attainment of program goals depends on achievement of short-term or sequential objectives.

The task in Phase II is to link the *CLARIFIED OBJECTIVE* with the specific evidence that will be collected, noting when the evidence is needed and the responsibility for carrying the process through to completion. Some find Phase II works best as a staff assignment. One program objective from Phase I may be broken into several more objectives, each linked to data to be collected at different time points by varying staff members as appropriate. In cases where the program has been well established and organized in a modular format with student goals and proficiencies identified, Phase II has been used in place of Phase I, merging the *CLARIFYING QUESTIONS* with the *CLARIFIED OBJECTIVES, EVIDENCE,* and *SOURCES-PROCEDURES.* The *QUALITY CONTROL* and *MONITORING CONSIDERATIONS* are alternatives that may be used to observe and note changes that occur during implementation. This can be accomplished under other columns but a local situation may warrant special emphasis.

Phase III - Interpretation

The culmination of the evaluative process is Phase III, Interpretation. It is here that judgments are made and recommendations formulated for improving the program. The following column headings are presented as choices in the design of the Phase III Evaluation Outline Form (EOF-3).

Recommended Structure for Phase III Worksheet:

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	How can the data be summarized and/or synthesized into most meaningful findings?	To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?

Optional as to Placement in Structure but Recommended for Use as Deemed Most Appropriate:

STANDARDS
What are acceptable levels of performance? Do the standards approximate those required for job entry level? Are there several levels of standards reflecting several levels of competency or occupational goals?

In order to attain meaning for evidence collected during Phase II, the data are synthesized or interpolated as *FINDINGS*. The program objectives can be viewed in terms of intent and the findings seen as what actually resulted. *STANDARDS* provide criteria to which findings may be compared for making *JUDGMENTS* and *RECOMMENDATIONS*. The standards may be internal to the institution, program, course or be derived from an external source such as task analyses, employer requirements, or examinations for licensure.

Some staff members feel that standards should be identified before the program begins. Others feel that standards are implicit in well written objectives. The use of standards as a yardstick to compare performance is recommended, if standards other than "the best we can do" can in fact be agreed upon.

Unlike the physical sciences, there are very few questions in education where the evidence offers conclusive proof beyond a shadow of a doubt. More often the findings are based upon multiple indicators that point to probable directions. The final judgments and recommendations often must be made by one person but a group discussion of possibilities may result in better recommendations and enhance the probability that the recommendations will be acted upon.

Typically Phase III results in one or more statements on the relative degree of satisfactory objective attainment. Equally important, judgments and recommendations may be related to the quality of the data collection instruments, the scope of the evidence collection, the appropriateness of the instructional materials and equipment, the subject matter content, and the pre-requisite skills and attitudes of students entering the program.

An evaluation report that does not contain recommendations such as these may be just what the staff feared at the outset, an assessment of effectiveness rather than an effort directed at program improvement.*

*The section, Supplementary Topics presents an approach for writing reports.

ADAPTING THE RBE PROCESS

When Phase I is begun, one of three common situations may exist:

a) Objectives exist in the form of student-centered skills or performances;

b) A list of program objectives has not yet been formulated;

c) Objectives exist in the form of processes or procedures.

The first situation, objectives existing in the form of student-centered skills, performances or competencies, is essentially curricular. It may include a specific component or course, or it may be comprehensive having a broad programmatic framework and sequential components or courses. A sample adaptation is given for a sequence in accounting.

The second situation, an absence of objectives, may exist when a new program is being planned. Beginning a new fire protection program is included as an example of adaptation to this situation.

The third situation, objectives in the form of processes, is addressed in a sample adaptation of a placement service program.

In each example, the approach is completed through Phases I, II and III. Accompanying text introduces each phase and the sample is shown using appropriate headings, columns and format.

Application A: *Objectives exist in the form of student-centered skills or performances.*

The following application example is taken from a degree program in Accounting. The faculty have met several times and have written broad program objectives that encompass elementary accounting, income and taxation, intermediate accounting, business law, principles of management, banking and finance, business communications and principles of organizational behavior. The evaluation plan would be completed for all objectives but the specific objective used in this example focuses upon skills used in double-entry accounting systems. The cognitive measure is a practice set in accounting that summarizes techniques and applied knowledges.

The objective in Phase I includes a description of the activities (two semesters of coursework in Accounting 193 and 194), the intended outcome (the ability to apply system) and the evaluative strategy (simulated application). Therefore, three columns for the Phase I form are adequate for this situation. The criterion column specifies the performance measure (practice set). The column for clarifying questions will lead the evaluator to collect evidence beyond a simple statement of numbers or percentage of students that passed the test.

Program Accounting

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Program Outline

Evaluators

OBJECTIVES	CRITERION MEASURES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	*What specific task(s) will constitute successful achievement?*	*What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?*
After completion of Accounting 193 and 194, all accounting majors will demonstrate the application of double-entry modified accrual accounting systems to a simulated public organization.	Demonstration of ability to complete a practice set of accounting records for an entire accounting period.	Are all accounting students required to meet the criterion? Are there prerequisites? What are the chances of success? Do internal standards of program conform to or accurately reflect externally accepted practices?

In this application to Phase II, the clarifying questions in Phase I led to a more comprehensive objective by identifying the need to incorporate prerequisites before undertaking the practice set. The identification of these prerequisites as a staff responsibility was noted in the Sources-Procedures-Personnel-Time column. Similarly, a clarifying question from Phase I identified the need for program alternatives for those students not achieving the criterion.

Phase II delineates the personnel and related roles in the evaluation effort. Projections of time for completion of tasks are identified, thereby allowing for sequential program adjustment as warranted.

Program Accounting

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION — EOF-2

Management Plan

Evaluators

CLARIFIED OBJECTIVES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence?* *What instruments will be needed?* *What kinds of information already exist?* *How can it be collected?* *Who can assist?* *When will the desired information be needed?*
After completion of Accounting 193 and 194, all accounting students will have satisfied prerequisites to begin the practice set, and will demonstrate the application of double-entry modified accrual accounting systems to a simulated public organization.	Instructor certification of prerequisites for beginning practice set satisfied. Reported grade on practice set.	Department instructional staff will reach group consensus to identify prerequisites for beginning the practice set by the end of the first semester or at the conclusion of Accounting 193. Department instructional staff will, by the end of first semester, determine past failure rate based on class records of previous two years. Subsequent program recommendations will be made by the staff concerning students Accounting 193 and 194 not achieving criterion. Students will complete of practice set prior to acceptance in Accounting 293.

The standard in Phase III (90% success rate) resulted from the examination of class records and subsequent consensus by department staff. Based on these data the success rate was perceived as realistic. The findings show that the standard was not achieved, therefore the recommendation was made to re-examine and determine effectiveness of the prerequisites needed for the practice set. It was also recommended that an instructional model be developed to address the needs of students not successfully achieving the criterion. As this effort progresses, a judgment may be made to include student feedback as a dimension in the examination of prerequisites and module content.

Program Accounting

EOF-3

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION
Evaluation Conclusions

Evaluators

OBJECTIVES	FINDINGS	STANDARDS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	How can the data be summarized and/or synthesized into most meaningful findings?	What are the acceptable levels of performance? Do internal standards reflect those external to the program?	To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client or students, staff, program and institution benefit from what has been learned?
Demonstrated competency with practice set.	82% success rate of students completing practice set. 100% of those attempting practice set had satisfied its prerequisites.	90% success rate--based on first semester department study.	Staff re-examine prerequisites for practice set in light of findings. Module of instruction be developed and offered to students during mid-semester break and summer session for those failing to achieve criterion. Staff continue evaluation of course objectives to determine their current validity in terms of changing external standards.

Application B: A list of program objectives has not yet been formulated.

In this example the program objectives are not available. The initial step in Phase I can be a listing of on-going activities in the program or a listing of outcomes intended for the program. This process will lead to formulation of objectives and the plan for evaluation. Assume in this case, the program to be a Certificate in Fire Protection, with an overall goal of "To offer inservice education for entry level firemen".

In the sample, the feasible starting point was a listing of activities with identification of relevant outcomes for the activities. Once activities and outcomes were delineated, clarifying questions pointed to potential basic program deficiencies in addition to the processes that needed further clarification. Program objectives evolved from the clarifying questions and were seen as required for the planning stage. Although the sequencing of column headings can be varied as appropriate, the end result of working through Phase I is a listing of higher priority objectives that an evaluation effort should address.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Evaluators

ACTIVITIES	OUTCOMES	CLARIFYING QUESTIONS	OBJECTIVES
What activities will actually take place to achieve the outcome of each objective?	*What are our realistic intentions?*	*What would an external evaluator ack given the objective, activities and outcomes, and tentative evaluative strategies?*	*What do we intend to accomplish? Outcomes?*
a) recruit students. b) offer courses, FP140, 141, 142. c) arrange for off-campus learning centers. d) enlist part-time off-campus instructors. e) organize program advisory group.	Students will acquire basic skills in Fire Protection. Appropriate facilities secured. Instructors hired. Active community group organized and assisting in program. 25 new students enrolled each semester.	What skills or group of skills are appropriate for each course? Are instructors qualified in terms of criteria set by institutional policy and needs within content area? What are specific ways advisors will help? What qualifications should these advisors possess?	To develop a list of minimum proficiences for each course. To identify the additional proficiencies learned in off-campus centers. To attain competent and qualified instructors. To effectively utilize the expertise and perceptions of the advisory group.

In the sample, Phase I was used as a planning phase for a new program. The decision was made to state the first year's objectives in terms of faculty efforts to develop and validate intended student proficiences or performance standards. The Phase I objective presented in Phase II reflects local choice of program priority.

In the design of the Phase II form, the criterion measures heading was found to be useful in specifying the validation process. Student grades on the proficiency examination are to be used primarily as part of the validation evidence. Although not selected, a column for "monitoring" of changes might have been utilized. In this instance these changes were integrated into the final phase.

The example shows the adaptability of the RBE system to local situations, even when the evaluation effort becomes essentially a curriculum development process.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION
Management Plan

EOF-2

Evaluators

CLARIFIED OBJECTIVES	CRITERION MEASURES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).	*What specific task(s) will constitute successful achievement?*	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?*
Department faculty will complete a list of minimum proficiences for FP140, 141 and 142 by end of first semester.	Community advisory group supplemented by professional and volunteer firemen will certify minimum level proficiencies.	Criteria for certification by advisory group. Use of student grades, success in advanced course and/or follow-up in employment situation.	Advisory group and faculty: a) review of existing programs at other colleges. b) identification of certification criteria. c) item analysis of student performance. d) design plan for collection of on-job performance evaluation by employers.

In this application, the results of Phase I were objectives that reflected the efforts to inaugurate a new certificate program. At the point in time assumed, the focus of these objectives is generally procedural although their achievement results in the basic information needed to systematically evaluate future student performances. The faculty chose to spend a year developing student performance criteria rather than to evaluate student performances on "assumed" criteria. The information contained in Phase III provides the basis for evaluation efforts in a subsequent year.

The question of program standards had not been previously addressed. The choice of a standards column in Phase III encouraged the faculty to formulate tentative external program standards that will apply to the program in the future. The findings and recommendations point to additional refinements that will be needed before evaluation of student performance can be viewed with reliability.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION EDF-3
Evaluation Conclusions

Evaluators

OBJECTIVES	STANDARDS	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	*What are the acceptable levels of performance? Do standards exist external to program?*	*How can the data be summarized and/or synthesized into most meaningful findings?*	*Is the program effective? Why or why not? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?*
Development of list of minimum proficiences.	Performance of students in off-campus work-study situations rated as satisfactory by agencies. Graduates of program will be rated as competent by employers.	Minimum proficiences FP140 and 141 were validated. Minimum proficiences for FP142 were not completed in time for total verification process. Analysis of student performance indicates some to be out of sequence.	Minimum proficiences for FP142 should be re-examined to obtain better sequencing. Monitoring of student performance in work-study situations to refine identified proficiencies. Follow-up study of graduates be initiated as soon as feasible, or within a year.

Application C: *Objectives exist in the form of processes or procedures.*

In this application, we assume that the college is embarking on a new placement service program. The objective has been formulated by the administration. After reviewing the Phase I format choices, activities and evaluative strategies were chosen and the information completed as a staff group effort. The external clarifying questions role was played by a local employment service counselor who not only actively supports the new service but was advising the Dean on the purchase of materials and equipment that are part of other program objectives. The questions listed in this column will lead the group to consider collecting additional data or evidence that was not implicit in the process objective.

Program Placement

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION

Program Outline

EOF-I

Evaluators

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	*What activities will actually take place to achieve the outcome of each objective?*	*How can the outcome be measured?*	*What would an external evaluator ask given the objectives, activities, outcomes, and tentative evaluative strategies?*
To provide placement services for all occupational education students.	1) Placement coordinator will assemble list of job opportunities by start of second semester. 2) Placement coordinator will provide group and individual vocation counseling throughout the year. 3) Coordinators will provide module of instruction in job-seeking skills. 4) Placement coordinator will conduct follow-up survey of graduates. 5) Placement coordinator will arrange on-campus interviews.	1a) Faculty advisory committee will review list of job opportunities. 1b) Faculty will present a list of jobs for which the students are prepared. 2) Student feedback. 3) Student evaluation forms. 4) Follow-up data. 5) Student and employer feedback.	What is the frequency and extent of placement service use by students? How current is list of job opportunities? Do students use the list? How? Frequency of use? What is the frequency and extent of use of the on-campus interviews by students and employers?

In the adaptation of the placement process objective to Phase II, the original program objective has been treated as a goal and the clarified objectives flow from Phase I activities. This transformation of activity to objective is not uncommon when working with process objectives. The remaining two columns specify the data collection process and reflect the clarifying questions column from Phase I. The time of the data collection is noted to allow for mid-program modifications if deemed appropriate.

Program Placement

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION EOF-2

Management Plan

Evaluators

CLARIFIED OBJECTIVES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence?* *What instruments will be needed?* *What kinds of information already exist?* *How can it be collected?* *Who can assist?* *When will the desired information be needed?*
Placement coordinator will develop and maintain a list of part-time and full-time job opportunities. Coordinator provides on-going group and individual career counseling services. Coordinator will arrange on-campus interviews during second semester.	Job listings will be compared by the faculty advisory committee to the State Employment Service Job Bank computerized listing. Coordinator's bi-monthly report: number of clients or students served, sessions, referrals, etc. Student opinion survey. Job placement record. Maintenance of up-to-date job clearinghouse for students.	Part-time list available within 90 days of coordinator's employment --- full-time list available by April 15. Comparison to take place within 30 days of availability. Bi-monthly progress conference with Dean of Student Services. Student survey conducted by Dean's office in March --- survey developed and tested by coordinator with assistance from Counseling Center staff. On-going review by Dean and Advisory Group.

The example assumes that time has passed and the evidence as noted in Phase II has been collected. The Phase III form has been used to briefly outline the important findings and recommendations. The complete recommendations will be made subsequently in a narrative summary report. Interim findings have already been reported to the appropriate staff members.

For this example, only two headings were used. Standards was not used because the evaluators felt that realistic standards did not exist for this new program. Standards may be used in the coming year based on outcomes of the current year.

The recommendations are concerned with program improvement and point to ways in which both the program may be modified and the on-going evaluative evidence be improved. The recommendation that the coordinator increase office hours and reduce employer visits will be made to the Dean and the coordinator supported by the student survey data.

Program Placement

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION — EOF-3

Evaluation Conclusions

Evaluators _____

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*How can the data be summarized and/or synthesized into most meaningful findings?*	*To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?*
Part-time job list. Full-time job list. On-going group and individual counseling. On-campus interviews.	Advisory team judged list to be adequate. Advisory team added to and modified list. Work load acceptable. Dean recommended coordinator re-appointment. Student opinion survey was generally favorable but critical of restricted office hours. Number and placement record acceptable. Student feed-back requests an expansion of this service.	The job lists be continually updated based upon placement records. Jobs be classified by student major program titles and cross-referenced to secondary programs as appropriate. An additional job list be developed for community volunteer work opportunities. Work-study funds be utilized to support additional clerical help for coordinator. Coordinator reduce off-campus employer visit time and increase office hours. Improve student opinion survey form to shorten and focus on access to information rather than overall opinion. Increase the number of on-campus interviews.

SUPPLEMENTARY TOPICS

Decision Options at the End of Phase I

As a result of completing the clarification process of Phase I the evaluator or evaluation team will have collected information, if only subjective opinions, and will want to modify the original program objectives and/or activities to some degree. However, if it is determined that serious discrepancies exist between what is actually occurring compared to what was thought to be occurring the decision to continue the evaluation process, i.e. go on to Phase II, may be legitimately questioned. At least two decisions may be available depending upon the severity of the discrepancies:

1) Decide to seek administrative assistance and/or approval for adjustments as needed and continue the evaluation process as the adjustments dictate.

EXAMPLES:

a) the budget allocation is insufficient to operate the program as intended and an amendment or additional allocation must be sought.

b) the equipment and/or supplies bid has been delayed causing a major change in the instructional methods planned.

c) administrative or personnel changes have resulted in a new program focus.

2) Decide to abandon the original evaluation plan and focus the effort on reassessing the need or purpose for the program.

EXAMPLES:

a) follow-up studies indicate low employment success for graduates.

b) enrollments are substantially lower than anticipated and transfer-out incidence is increasing.

c) after re-examination of the program during Phase I, the program faculty seriously doubt the validity of the objectives as they exist.

If the decision is made to reassess the needs or purposes (#2 above), a practical approach would dictate that information should be sought from at least three sources:

1) the students enrolled and potential enrollees;

2) the institutional commitments of human and physical resources that will exist separate from the program;

3) community needs and employment opportunities.

The procedures involved might include surveys, interviews and future planning techniques. The results are best estimates based upon the evidence that can be assembled. The evidence can then be the basis of program objectives and standards to be used in a future evaluation of the program. The RBE process can be adapted for this activity by selecting the appropriate column headings. An example of this adaptation is shown below.

Program Evaluation of Need

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION — EOF-I

Program Outline

Evaluators

OBJECTIVES	ACTIVITIES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
To estimate student enrollment trends in next ten years.	Survey enrollment trends in similar programs at similar colleges. Discuss trends with SUNY central administration and SED. Sample survey of high school juniors/ seniors from primary feeder high schools. Review local recruitment procedures.	Anticipate stable enrollments. No growth anticipated statewide. Survey results show most potential students are unaware of the program. No special recruitment efforts underway for this program area.	Local enrollment decline is unique. Interview current students to learn how/ why they enrolled. Recruitment efforts should be undertaken by faculty, brochure developed and circulated.

Justifying the Program

The problem of justifying a program's existence is becoming an increasing concern. Faculty are being asked to think like administrators and eventually present evidence for their case. In order to help focus concerns leading to specific data collection activities, the chart below lists factors that can be considered in an "If-Then" question context. The numerical results will point to certain problem areas to be investigated, however caution is urged against any strict numerical interpretation. All items are not of equal weight or even operable for every program. The chart is designed to be used to develop a judgmental profile of concerns in a systematic way. The priority of the concerns must be added from the local context.

Question: If the program is continued, changed or terminated (select one), what is the estimate of impact in terms of the following:

	Judgment Continuum				
Program Factor	No loss or problem				Serious loss or problem
Student enrollment	5	4	3	2	1
Student retention history	5	4	3	2	1
Student completion history	5	4	3	2	1
Placement (if desired) history	5	4	3	2	1
Placement (if desired) in related field	5	4	3	2	1
General instructional effectiveness	5	4	3	2	1
Licensure (if applicable)	5	4	3	2	1
Program cost	5	4	3	2	1
Staff resources	5	4	3	2	1
Equipment resources	5	4	3	2	1
Facilities resources	5	4	3	2	1
Land use resources	5	4	3	2	1
Career program FTE	5	4	3	2	1
Supporting instructional FTE	5	4	3	2	1
Support services workload	5	4	3	2	1
Employment opportunities	5	4	3	2	1
Community/regional "uniqueness"	5	4	3	2	1
Social policy relationship	5	4	3	2	1
Program "prestige"	5	4	3	2	1
College mission/goal relationship	5	4	3	2	1

Toward Program Objectives

Phase I of RBE can be undertaken with nearly any statement describing intentions, missions, goals or objectives, and the process will implicitly force clarification. This is an approach to the formulation of objectives if none exist and the staff members choose to identify them before undertaking Phase I.

A recommended program objective statement consists of *Who will do What by When.* These statements should be a) more specific than a college mission or goal and b) statements that summarize the many instructional or performance objectives that may exist. We should keep in mind that if an objective is too general, the subsequent evaluative strategies or evidences will become too numerous with which to deal. If the objective becomes too specific, the list of objectives themselves will be unmanageable.

WHO are usually students or staff members. *WHAT* consists of activities and/or outcomes. *WHEN* is the essence of program evaluation. The *WHEN* can be at the start of the program, during the program, at the end of the program, or at a time point after exit. The following objectives illustrate:

a) All students will possess a minimum of elementary algebra skills at entrance to the engineering program.

b) After one semester of instruction all students will demonstrate knowledge of single entry and double-entry modified accrual accounting system.

c) At the end of one year all students will demonstrate a positive interest in pursuing a career in the business field.

d) At the end of four semesters 75% of the students will be seeking job placement.

e) All graduates of the program, if they desire, will be employed in a field related job within three months of graduation.

The worksheet operationalizes a process through which staff members as a group or individually may formulate program objectives.

WORKSHEET: Procedure for Developing Program Objectives

A. Program Title _____

B. 1) Review college goals or division mission statement. Select one.

2) Write phrase(s) that describe one or more program outcomes and that relate to the selected goal, using this format:

	Who	Will Do	What	By When
e.g.	Electronics students	will read and interpret	blueprints and schematics	by the end of the year
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

C. 1) List the course concentrations, sequences, experiences that comprise the program for most students.

e.g.	6-hours science	10 weeks on-the-job experience	Accounting I, II, III
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

2) Review the concentrations and experiences listed in C.1. Write phrases that describe or summarize the intended student outcomes of each group of experiences. e.g. (WHEN) by the end of the nine-hour Electronics sequence (WHO) all students will have demonstrated the ability to (WHAT) read and interpret technical manuals, blueprints, service contracts, and trade journals in their speciality area.

D. Compare the phrases produced in both B and C. At this point, you have experienced conceptualizing objectives from two points of view; from the general goal and from the more specific course or instructional objective. The phrases should be similar or complementary. Assess the outcomes and choose your preferred approach---B, C, or a combination of both, and proceed to write phrases that summarize all remaining college goals that are relevant for your program.

NOTE: Regardless of the actual procedure used in writing program objectives, the results will be subject to revision and refinement as the evaluation process proceeds.

Evaluation Techniques and Instruments

A wide variety of techniques and instruments can be used to assess the various objectives and processes of an educational program. The challenge lies in selecting the best combination of techniques and/or instruments for each given activity. If the person(s) charged with the task of assessment has little experience or expertise in the area of program evaluation, it may be necessary to seek assistance in designing the evaluation strategy and developing effective measuring devices. If this route is chosen, the coordinator and/or program staff should work closely with the consultant to help develop an effective evaluation scheme for that particular program.

In designing any instrument or evaluation strategy with or without the help of consultants, the following guidelines should be kept in mind:

1. Although a variety of measuring devices and activities should be considered, selection of the best should be based on the particular group and circumstances with consideration given to:

   a) staff sensitivity or reluctance to evaluation.
   b) adverse reaction to excessive writing demands.
   c) type of activity being evaluated.
   d) time allocated to evaluation activities.
   e) need for specific evaluative data.

2. Instruments should be as brief as possible and reflect specific objectives and process variables.

3. Instruments must have clear instructions and be easily administered.

4. Items should be objective in nature whenever possible.

5. Confidentiality of individual responses should be assured.

6. The minimum amount of information needed should be collected for assessing the objective.

The following annotated listing of evaluative techniques and activities, while not exhaustive, represents common approaches utilized in program evaluation. All have merit when appropriately used and the order of listing should not be viewed as a priority ranking.

a) Informal Discussions: can provide process clues, useful in monitoring progress, danger of biased opinion, problem of confidentiality, may be needed in terms of morale.

b) Staff Meetings: much like (a) above but with constraints added by group attendance---useful for brainstorming and first level interpretation.

c) Observation: linked with (a) above, can be useful in clarifying a report unless the spy image is projected---most valuable as secondary motive.

d) Review of Existing College Records: a place to begin---usually more collected than can be made available---can be constrained by confidentiality and bureaucratic ownership.

e) Commercial Tests/ Surveys: question the validity for your purpose, value in the proven reliability and potential for comparisons between groups, guard against unwarranted interpretation.

f) Locally-Made Questionnaires and Surveys: time-consuming but sometimes the only way to specific indicators, need to be field-tested, should guard against leading responders to the desired answer, inexpensive per return.

g) Interviews: costly in time but allows depth of information, should be structured to maintain uniformity and assist in tabulation of responses, interviewing skill required, field-testing recommended.

h) Class Examinations/ Grades: more here than will be needed, problem is to choose the significant parts, the instructor must be the interpreter, tend to be time-point oriented measures of cognitive domain only.

i) Performance/ Proficiency Tests: costly to develop but perhaps the only way to measure application of knowledge; seek industry and union tasks analysis and entry competency levels.

The Report Format

The narrative report can take a variety of forms. Experience of the writer and known preferences of the reader are usually the controlling factors. In the absence of these factors, the final report can flow directly from the completed evaluation forms.

Most readers are interested in facts and brevity. The preference of the reader should be sought and followed if your goal in reporting is to communicate your findings and recommendations. If a preferred format is not known, the following is presented as one method. The reader is encouraged to adapt rather than adopt.

College Name
Evaluation Report Title

Identification -- College Mission Statement; Department of Program Goal; Program Title

Introduction or Background -- Narrative section that gives the reader a perspective and context and purpose or motive of the evaluation effort. This section may also list the personnel involved in both the operation of the program and the evaluation.

Overview -- The information for this section can flow directly from the Phase I form. A copy of the completed Phase I form, supported by narrative if needed, may be all that is required. The program objectives, activities, intended outcomes, and a summary of evaluative strategies employed are included in the form.

Objectives and Findings -- Each objective can be restated and the evaluation activities and findings reported for each objective. Two or three paragraphs may be sufficient for each objective.

Recommendations -- This may be the most important section of the report. It should answer the "so what" question and provide the feedback for program modification decisions that satisfy the motive for performing the evaluation.

The Role of Financial Analysis in Program Evaluation

The need to include financial analysis as an integral part of the evaluation findings should be known from the beginning and be implicit in the clarified objectives but in reality it often arises after the fact. This section briefly discusses three approaches to financial analysis and provides initial references for further consideration.

Cost Analysis

A common financial analysis function in program evaluation is one of reporting the comparison of budgeted amounts with actual expenditures in order to account for the use of funds as approved. A second purpose may be to break the gross expenditures into program component data to examine internal efficiency or staff accountability. The data are usually presented in a budgeted/expended table and will include salaries, wages, contracted services, travel, supplies and equipment. No sample report is included here because the details must conform to your local system of accounts in order to have internal validity. If the report is for a grant-supported program, then the report must conform to the grantors format.

Problems rarely occur in a budget-expended report unless the program manager has violated management regulations. Problems can arise, however, when these data are taken out of context and comparisons made between programs. Before true comparisons can be made, the cost-data may have to be adjusted. If a program staff is confronted with comparison questions or financial comparisons, the following items may suggest cost data comparison problems:

1. Salaries and wages can be reported using actual amounts, if that data is appropriate, or as a number of FTE times average college salaries for the rank. The correct data will vary with the decision(s) that are implicit. If general costs of two or more programs are being compared, the program area that happens to have the lower ranking and/or less experienced faculty will usually appear less costly. This effect is especially marked when sub-program costs are calculated. Conversely, if a continuation of existing faculty is expected, the actual costs should be used for budget planning. No administrator should penalize a program because it is staffed with experienced and tenured staff.

2. In occupational programs, equipment costs can be a major direct expense in any one year and no direct cost for several years. The true costs may be estimated by amortizing the equipment over its useable lifetime.

3. The method of providing estimates of fixed costs and support services (indirect costs or overhead), if included, must be equitable. Estimates can be based upon percentage of students served, relative total budgetary expenses, percentage of faculty time assigned to the program, or the collection of actual use data as is sometimes done for telephone and postage expenditures. Whatever the method, it should be seen as reasonable and necessary to the comparisons. For example, is it really necessary to attribute a share of the Presidents' Office to the program cost?

4. Comparisons are also possible that are not sum totals. Examples of these techniques include the student/faculty ratio, contact hours per faculty or per program, student credit hours generated, faculty support costs (all expenses except faculty salaries), space utilization, and income generated. These techniques tend to be workload comparisons only and do not of themselves cause program effectiveness or quality to also occur. They do, however, point up program support differences that can lead to further study of cost-quality relationships.

   Initial References:

   a) local college business administrator

   b) WICHE System of Cost Analysis, Western Interstate Commission for Higher Education, Boulder, Colorado.

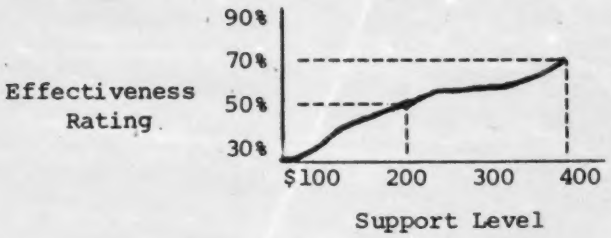
Cost-Effectiveness Analysis

This term can be broadly defined to refer to a variety of techniques that attempt to link cost to quality. Two common problems are: a) estimating the impact of incremental changes in support level within one program, and b) estimating the relative value of alternative methods of achieving the same objectives. Cost effectiveness questions are essentially consumer questions: Do we buy a Ford, Chevrolet or Plymouth; or Is margarine a satisfactory alternative to butter? Many two-year colleges are currently examining mediated instruction as an alternative to the more usual classroom method.

There is little mystery in the analysis -- only the hard decisions of measuring the specific program outcomes and linking them to expenditures while controlling for external effects. Most studies of this type are estimates because of the difficulty of providing the cause and effect relationship.

EXAMPLE

Optimum Cost-Effectiveness Curve



A cost-effectiveness study may result in data expressed in the graph above. In this example, a funding level of $200 per student was associated with a 50% effectiveness level rating (about half of the students accomplished the program objectives satisfactorily). By projecting the supplementary services needed to raise the effectiveness level to 70%, it was found to cost an additional $200 per student. These kinds of questions are implicit in every budget request and budget allocation. The concreteness of the data makes the results less than "proof" but this kind of analysis can provide more accurate estimates than a seat-of-the-pants opinion.

Cost-effectiveness studies often demonstrate feasibility that justifies further experimentation. An example of this situation is presented below using a hypothetical finding from a study of a mediated instructional method versus a regular class method.

a) Students using the Auto-Tutorial Self-Paced (A.T.S.P.) typing program do not differ significantly from students enrolled in regular class instruction on the four skills measured.

b) Not including original development and equipment costs which were grant supported, the A.T.S.P. program can be operated at one-third the cost of the traditional classroom method.

c) The two groups of students are assumed to be comparable but attitudinal differences may exist since the A.T.S.P. group were volunteers with knowledge of the comparative study.

Findings such as these may lead to a recommendation to continue the A.T.S.P. program but all questions are not answered. The program development and equipment costs are real and should not be excluded. The question of student knowledges and attitudes learned in the classroom beyond the four skill areas has not been resolved and the question of whether any student will acquire equal skills in the A.T.S.P. method without the halo effect of an experimental situation has not been completely answered.

In reality, few cost-effectiveness studies are done because familiarity with the program provides the gross cost information. If the comparative costs are very close, the evaluation effort focuses on effectiveness only. If the comparative costs are extremely different, the effectiveness rating is not usually sufficient to outweigh the operational decision based on costs in a universe of limited resources. The least costly is not always the best, but neither is the most costly method the most efficacious. Cost-effectiveness analysis techniques can be used to gain better information on the cost-quality relationship but, like most social science research, the decisions that must be made are judgmental.

Initial References:

a) Stromsdorfer, E.W. Review and Synthesis of Cost Effectiveness Studies of Vocational and Technical Education. Columbus: Ohio State University, ERIC Clearinghouse on Vocational and Technical Education, 1972.

b) "Program Budgeting", Knezevich, Stephen J. McCutchan Publishing Co., Berkely, 1973. Chapter II.

Cost-Benefit Analysis

There can be many kinds of educational benefits but cost-benefit analysis, as performed by most economists, carries with it specific definitions and complex methodologies. The concept that benefits can be attributed to an investment in education is based in the tradition of human capital theory. Education and training can be viewed as both a social and individual investment. Cost-benefit analysis estimates the returns or benefits from that investment. Decision-makers can use cost-benefit analyses to maximize profits; i.e., choose among alternate modes of long-term investment.

Classical cost-benefit models require that all benefits be translated into dollar amounts. The usual "private benefit" is seen to be the salary earned over a time period by the recipient of the education or training. The social benefits can include increased taxes paid, negative benefits of not being a cost to society (welfare, criminal detention), and increased consumption of other economic goods made possible by the salary earned. The calculations compare the multi-year dollar estimates of the value of the benefits and relevant costs of the investment(s) under study. Since factors other than amount and kind of education are active in determining an individual's salary, characteristics such as age, sex, IQ, socio-economic status and motivation must be controlled or the results of a cost-benefit study may be seriously questioned.

A rigorous application of cost-benefit analysis may require the assistance of an economist and/or statistician. Before undertaking such an effort, the program management should estimate the cost-effectiveness of the procedure. Perhaps a follow-up study of graduates in terms of wages and employment status will provide sufficient information.

Initial References:

a) Kaufman, J.J., et. al. An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools. University Park: Pennsylvania State University, Institute for Research on Human Resources, 1967.

b) ERIC System -- using postsecondary, vocational education and cost-benefit studies as key words.

General References

1. Anderson, Ball, Murphy and Associates. Encyclopedia of Educational Evaluation. Washington: Jossey-Bass, 1975.

(Reads like an "encyclopedia". Provides brief definitions of terminology and leads to other references. A comprehensive sourcebook.)

2. Phi Delta Kappa National Study Committee on Evaluation. Educational Evaluation and Decision Making. Itasca, Illinois: F.E. Peacock Publishers, Inc., 1971.

(Discusses problem areas in evaluation and suggested approaches to address them. Deals extensively with the CIPP model, and its implementation.)

3. Popham, James W. Evaluation in Education. Berkeley: McCutchan Publishing Corporation, 1974.

(A collection of nine papers dealing with aspects of evaluation ranging from "perspectives" to "matrix sampling". A professional reference that provides references, exercises, and examples keyed to the nine topics.)

4. Knapp, Joan and Amiel, Sharon. A Compendium of Assessment Techniques. Educational Testing Service, Princeton, NJ.

(A resource for techniques and assessment tools and how they might be used in evaluation.)

5. Steele, Sara M. Contemporary Approaches to Program Evaluation. ERIC Clearinghouse on Adult Education, Education Resources Division, Capitol Publications, Inc., Washington, DC.

(Paperback. A reference book to standard methods of evaluation and leads reader to other resources. May substitute for Encyclopedia in some ways.)

6. Taylor, Peter A. and Cowley, Doris M. Readings in Curriculum Evaluation. Dubuque, Iowa: William C. Brown, Co., Publisher.

(A collection of readings dealing with general issues, models, and application of approaches to program evaluation. Focus is on curriculum but the ideas are transferable. Articles tend to be theoretical.)

7. Wentling, Tim L. and Lawson, Tom E. Evaluating Occupational Education Training Programs. Boston: Allyn and Bacon, 1975.

(Written primarily as a text. Provides review of evaluation, its techniques and methodologies. Easily understood.)

8. Worthen, Blaine R. and Sanders, James R. Educational Evaluation: Theory and Practice. Worthington, Ohio: C.A. Jones Publishing Company, 1973.

(Written as a text or professional reference. Summarizes literature on educational evaluation and identifies critical needs in the field.)

9. Mager, Robert F. Preparing Instructional Objectives. Fearon Publishers: Palo Alto, California, 1962.

(A "how-to" guide for writing objectives that are measurable.)

DESIGN MATERIALS

The three examples provided in "Adapting the RBE Process", show a variety of applications for RBE given different evaluation situations. Each application demonstrates different column configurations as well as various selections and sequences of column headings. A set of four reproducible masters is provided in the pocket at the back of this book to facilitate local design of evaluation forms.

One reproducible master is provided for duplicating the basic outline of each Evaluation Outline Form, Phase 1, 2 and 3. A fourth master provides the suggested column headings for each of the three evaluation forms. This master is designed for duplication on Avery self-adhesive labels, #5375. Three blank labels will occur at the bottom of the final duplicated sheet. These permit users to create "write-in" column headings to meet special application needs.

Before proceeding to design a form or set of forms for any specific evaluation situation, some predesign considerations should be made. Answering the following three questions may be all that is required before initiating the design sequence.

1. What categories of information are most appropriate in this evaluation application? (This will determine the specific column headings required.)

2. In what order will these categories of information be used as the evaluation activities proceed? (This will determine the correct order or sequence of columns on the evaluation forms.)

3. What amount of detail will be required for recording information in each of the selected categories? (This will determine the relative width of columns as they appear on the evaluation forms.)

It may be more convenient for the user to complete the following table as a guide to evaluation form design. Consider the *COLUMN HEADINGS* that are available and check off those (maximum of four) most appropriate to the evaluation application. The other two columns in the table may be used to indicate the order in which the selected column headings will appear across the form (use 1, 2, 3, 4), and the desired width of the selected columns (1/4, 1/3, 1/2 width of form).

COLUMN HEADINGS		*COLUMN ORDER*	*COLUMN WIDTH*
PHASE I Objectives			
Activities			
Evaluative Strategies			
Clarifying Questions			
Outcomes			
Criterion Measures			
PHASE II Clarified Objectives			
Evidence			
Sources-Procedures-Personnel-Time			
Clarifying Questions			
Quality Control or Monitoring Considerations			
PHASE III Objectives			
Findings			
Judgments and Recommendations			
Standards			

Once predesign decisions have been made evaluation forms can be produced by pursuing the following steps:

1. Xerox the appropriate Evaluation Outline Form reproducible master on ordinary white duplicating paper.

2. With a ruler, draw in the columns with pencil or ballpoint using the widths determined previously.

3. Xerox the column headings master on a sheet of Avery labels, #5375.

4. Apply the Avery label column headings in the order previously selected.

5. Xerox the completed intermediate in sufficient supply to meet evaluation needs. Color-coding can be accomplished at this stage by copying on yellow, blue and pink paper for Phases 1, 2 and 3 respectively.

OBJECTIVES

What do we intend to accomplish? Outcomes?

CRITERION MEASURES

What specific task(s) will constitute successful achievement?

QUALITY CONTROL OR MONITORING CONSIDERATIONS

How can the data be summarized and/or synthesized into most meaningful findings?

ACTIVITIES

What activities will actually take place to achieve the outcome of each objective?

CLARIFIED OBJECTIVES

Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).

OBJECTIVES

These are carried forward from previous phases in some form as reference only.

EVALUATIVE STRATEGIES

How can the outcome be measured?

EVIDENCE

What evidence can be obtained to determine attainment of objectives?

FINDINGS

What is actually taking place? What changes are occurring during implementation? How are changes affecting programmatic factors?

CLARIFYING QUESTIONS

What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?

SOURCES PROCEDURES PERSONNEL-TIME

Where can best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?

STANDARDS

What are acceptable levels of performance? Do the standards approximate those required for job entry level? Are there several levels of standards reflecting several levels of competency or occupational goals?

OUTCOMES

What are our realistic intentions?

CLARIFYING QUESTIONS

What should an external evaluator ask, given the objectives and tentative evaluative strategies?

JUDGMENTS AND RECOMMENDATIONS

To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?

EVALUATION OUTLINE FORM: Phase 1 - Clarification

EOF-1

Program Outline

EVALUATION OUTLINE FORM: Phase 3 - Interpretation

EOF-3

Evaluation Conclusions

EVALUATION OUTLINE FORM: Phase 2 - Data Collection

EOF-2

Management Plan

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